DOCUMENT RESUME

ED 449 412 CG 030 623

AUTHOR Aviles, Christopher B.
TITLE A Qualitative Study of Social Work Instructor and Student Reactions to Mastery Learning Instruction.
PUB DATE 2001-01-00
NOTE 34p.
PUB TYPE Reports - Research (143)
EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS College Faculty; College Students; Curriculum Development; Higher Education; *Mastery Learning; *Social Work; Student Surveys; Tests

ABSTRACT

In this study social work instructor and student reactions to a behavioral instructional method called mastery learning were examined using qualitative methods. Mastery learning utilizes additional learning time and repeated testing opportunities to increase student learning. Students rated how helpful seven instructional elements of mastery learning were and described what they liked and disliked about the instructional elements. Students (N=342) rated the mastery elements as either very or quite helpful 93% of the time. For instructional elements, comments ranged from a high of 94% positive (ungraded quizzes) to a low of 82% positive (make-up exam, outside class reviews). The mastery instructor reported increased classroom time efficiency; increased focus on essential material; and a stronger coordination between teaching and testing. (Contains 45 references.) (JDM)

TITLE

A qualitative study of social work instructor and student reactions to mastery learning instruction.

AUTHOR

Christopher B. Aviles, Ph.D., ACSW
Assistant Professor of Social Work

Social Work Department
Buffalo State College
1300 Elmwood Avenue
Buffalo, NY 14222

Work 716-878-5327
avilescb@buffalostate.edu

ABSTRACT

Instructional methods are often evaluated with student grades. However, student and instructor to an instructional method also are important. Social Work instructor and student reactions to a behavioral instructional method called mastery learning were examined with qualitative methods. Mastery learning utilizes additional learning time, and repeated testing opportunities to increase student learning. Students rated how helpful seven instructional elements of mastery learning were, and described what they liked and disliked about the instructional elements. The instructor kept a log while implementing mastery learning.

Students rated the mastery elements as either very or quite helpful (93%). Of 342 student comments, 86% were positive about mastery learning. By instructional elements, comments ranged from a high of 94% positive (ungraded quizzes), and a low of 82% positive (make-up exams, outside class reviews). The mastery instructor reported increased: classroom time efficiency, focus on essential material, and coordination between teaching and testing.

PURPOSE

This study is the second part of a larger study in social work education on mastery learning instruction. Mastery learning is a behavioral instructional method that involves using time flexibly to increase student learning. The first part of this study utilized quantitative methods to contrast mastery and non-mastery instruction. The results showed that mastery learning generated positive results in achievement and in attitudes toward poverty. However, the results did not reveal if students and the social work instructor reacted positively or negatively to mastery learning.

Qualitative methods are often employed in educational settings to collect data about the experience of students or teachers and to enrich quantitative data (Clandinin & Connelly, 1994; Evertson & Green, 1986). In this study, qualitative methods were employed to examine student and social work instructor reactions to mastery learning. Two research questions were investigated: (a) How will students react to being taught with mastery learning? (b) How will a social work instructor react to implementing and using mastery learning in an undergraduate social work course?

What is Mastery Learning?

Mastery learning is the group-based implementation of the Carroll model of school learning (Carroll, 1963). The Carroll model suggests learning is dependent on the amount of time needed to learn and time allowed to learn (Carroll, 1963). Learning should increase as time allowed increases. In other words, achievement is held constant and time allowed is varied instead of holding time constant (e.g., one

semester) and allowing student achievement to vary (Bloom, 1968, 1984; Carroll, 1963). Mastery learning involves using time flexibly to increase student learning and achievement. Students are often given time to retake parallel versions of exams or rewrite projects/papers until reaching what an instructor decides is mastery. The additional time, with varying levels of intervention by instructors, allows students to clarify poorly understood material before retesting. Figure one includes a summary of mastery learning and "traditional education."

Distinguishing features of mastery learning include the following instructional elements: (a) vertical and horizontal curriculum alignment, (b) formative evaluations, (c) feedback and correctives, (d) retesting cycles, and (e) criterion-referenced grading (Anderson, 1981, 1993; Bloom, 1968, 1984; Guskey, 1987; Kulik, Kulik & Bangert-Drowns, 1990). Each is briefly described to give readers a fuller picture of mastery learning.

Vertical and horizontal curriculum alignment involves matching the course content taught and course content tested (Guskey, 1985; Cohen & Hyman, 1991). Horizontal curriculum alignment means course material is followed through from lesson planning to teaching and testing, preventing any instructional time from being spent on material that will not be tested. Horizontal curriculum alignment should help an instructor focus on what material she/he considers essential by determining what material will be tested. Spending instructional time on material that is not tested means an instructor cannot verify the material was ever learned, and raises questions about how "essential" the material really is if it is not tested.

Figure 1 Comparison of Mastery Learning and Traditional Education

	TRADITIONAL	MASTERY LEARNING
1.	Large group instruction	Individual, small group, or large group instruction
2.	Content centered objectives	Student centered objectives
3.	Passive student role	Active student role
4.	Teacher role: disseminator of information	Manager of learning
5.	Students accountable for success/achievement	Student, teacher, system accountable for success/achievement
6.	Evaluations limited to use of grades	Evaluation used to determine progress and final standing
7.	Norm-referenced grading	Criterion-referenced grading
8.	Instruction is usually continuous, failing students progress to new units	Instruction is adaptable, failing students given repeated opportunities to pass
9.	Teacher expects 1/3 of class to fail	Teacher expects most students to "pass" their work
10.	Teacher uses one primary teaching mode	Teacher uses multi-faceted teaching approach

Note: adapted from Lee & Pruitt (1984) Providing for Individual Differences.

Vertical curriculum alignment means course material is taught and tested to the same knowledge level, referring to the hierarchical nature of Bloom's (1956) taxonomy of six educational objectives (knowledge, comprehension, application, analysis, synthesis, and evaluation). Course material should be taught and tested to the same knowledge level because a student's understanding of course content to lower levels (e.g., knowledge) does not guarantee understanding to higher levels (e.g., synthesis). For

example, simply knowing the parts of an intervention plan (knowledge) may not mean students can write one (synthesis) or critique one (evaluation). Similarly, instruction should support whether an exam requires students to recognize the name "Mary Richmond" (knowledge) or critique her contribution to social work (evaluation).

Formative evaluations commonly take the form of short, ungraded quizzes intended to measure the progress toward achievement or "formation" of knowledge. Formative evaluations are referred to in this study as quizzes. Quizzes often do not count toward final grades because their purpose is simply to check the learning progress (Bloom, Hastings & Madaus, 1971). Quizzes are often "scored" immediately in class so students see which questions they answered correctly and incorrectly. Summative evaluations, common in higher education, also are utilized in mastery learning in the form of graded exams (objective or other format). Graded exams are intended to measure the final "summation" of student learning while ungraded quizzes measure progress toward achievement. Ungraded quizzes and graded exams are used together in mastery learning. In practice, students may take several ungraded quizzes on the essential learning unit material (so the instructor can see if students are learning the content) before taking the graded exam on that same material. Students often call the ungraded quizzes "practice runs, trial runs or warm-ups" for the graded exam. Alternatively, testing with only a mid-term and final exam means an instructor may not know until the semester is half finished if students are not understanding the material. Feedback refers to instructors giving students information on their learning progress. Commonly, instructors give students the answer keys to quizzes and exams so they can "see" what they answered correctly or not. Correctives refer to correcting student learning errors by

re-teaching material, providing remedial material, or providing the opportunity for students to ask questions about incorrectly answered questions.

"Re-testing cycles" refers to taking parallel forms of exams, commonly called make-up exams. In education, the term make-up exam sometimes describes what an instructor gives a student who has missed an exam. In mastery learning, all students can retake a different but equivalent version of an exam (referred to as a make-up exam) in order to improve their performance. Make-up exams usually have similar questions as the exam but are phrased differently and have different response choices. Ideally, make-up exams should be as difficult as the original exam, or even more difficult. When considered together in this particular study, all students took two ungraded quizzes, a graded exam and then a make-up exam on the unit material taught in class (the course had three learning units).

Mastery learning uses criterion-referenced grading (Bloom, Hastings & Madaus, 1971). Criterion-referenced measurement compares student performance to a standard and not the performance of other students as with norm-referenced measurement (commonly referred to as the normal curve). Criterion-referenced measurement may produce score distributions deviating from normal because it is possible all students could meet the criterion (Gronlund, 1981; Martuza, 1977). Criterion-referenced measurement is consistent with a fundamental belief of mastery learning that all students are capable of achieving higher levels if given clear learning goals, feedback and correctives, and additional testing opportunities by means of makeup exams.

Research on Mastery Learning

What does the research say about mastery learning? Mastery learning has generated mainly positive achievement results in higher education (Kulik, Kulik & Bangert-Drowns, 1990; Guskey & Pigott, 1988). However, instructors have reported both positive and negative reactions to teaching with mastery learning. Positive instructor reactions include increased consistency between what was taught and tested, increased time efficiency in the classroom, and increased consistency between instructors teaching different sections of the same courses (Dunkle, 1984; Fitzpatrick, 1985; Guskey, 1985, 1988; Guskey & Pigott, 1988; Guskey, Benninga, & Clark, 1984; Kulik, Kulik & Bangert-Drowns, 1990; Robb, 1985; Squires,1986; Wire, 1979).

Negative instructor reactions include identifying "faulty teaching" (e.g., instructor forgot to teach some essential material, instructor taught it to the wrong knowledge level, exam question did not match content taught) and has been referred to as a humbling effect (Guskey & Pigott, 1988). Many instructors also have criticized mastery learning for being time intensive (Abrams, 1979; Arlin, 1984; Barber, 1979; Brown, 1977; Burns, 1987; Decker, 1989; Dunkleberger & Knight, 1979; Fitzpatrick, 1985; Guskey, 1985; Honeycutt, 1974; Klein, 1979; Levine, 1985; Lewis, 1984; Nepote-Adams, 1991; Palardy, 1986). A synthesis of mastery learning research found mastery learning required on the average only 4% more instructional time than control groups (Kulik, Kulik & Bangert-Drowns, 1990). This writer found mastery learning required only 6.75 more hours over a semester compared to non-mastery instruction (Aviles, 1996).

Research on student attitudes toward mastery learning has yielded mixed results (Bauman, 1980; Brown, 1977; Lee & McLean, 1978). However, two syntheses of research found mastery learning generated mainly positive quantitative results on student attitude toward mastery learning (Guskey, 1988; Kulik, Kulik & Bangert-Drowns, 1990). Quantitative methods did not reveal what students or instructors liked or disliked about mastery learning.

How Mastery Learning was Implemented in this Study

Instructors have the freedom to implement all or only some of the mastery elements and structure them differently in their classrooms. For example, there is no ideal number of quizzes, exams, or makeup exams to give, and instructors can implement all the mastery elements differently. The flexibility in implementation means instructors may implement the mastery elements in the most feasible rather than ideal way (if an ideal way even exists). Consider the ungraded quizzes as one example. Some instructors have employed 16 quizzes or one quiz per week, while others used none. Instructors have made quizzes mandatory or optional and in some cases have graded and counted them toward final grades. Other instructors actually have retesting cycles for the quizzes and require students to take a parallel version or "makeup quiz" if they do not score high enough on a quiz. Quizzes can be objective format and/or essay format or instructors can check learning progress by simply asking students questions about what they learned in the last class meeting. The flexibility in how the mastery elements can be implemented makes it difficult to picture what instructors actually did in their classrooms when they say they "taught with mastery learning."

The implementation of mastery learning in this study included using (a) curriculum alignment, (b) three written student study guides, (c) six ungraded quizzes, (d) three graded exams, (e) three graded make-up exams or one per exam, (f) both in-class and outside class mandatory feedback and correctives, and (g) criterion-referenced grading. Instructional content was chosen for the entire course before instruction began and split into three learning units that addressed (a) history of poverty and poverty measurement, (b) poverty demographics, and (c) anti-poverty strategies. The units were sequenced so material in the first unit supported later units. Horizontal curriculum alignment was checked by determining that each course objective had corresponding course content and exam questions. The course content and exams were checked to verify that all material taught was tested, and that all material tested aligned with a course objective.

One written student study guide was created for each of the three learning units and was distributed when the learning unit began. The class had six 15-question ungraded quizzes. Having six quizzes meant there were two quizzes per study guide: one quiz on the first half and one quiz on the second half of each study guide. Students recorded answers on a computer sheet as well as on the quiz, turned in the computer sheet and checked the quiz answer key available in the classroom. Students asked questions about incorrectly answered items for about 15 minutes during the in-class feedback and correction. All quizzes were returned and students could ask further questions before or after the next class if needed.

The class had three 50-question graded exams, one per learning unit. Students recorded answers on the computer sheet and exam and turned both in. The graded

exams and grades were returned in the next class and the answer key was shown on an overhead projector. Students asked questions about incorrectly answered exam items for about 20 minutes during the in-class feedback and correction. The exams were collected again and dates announced for the outside class review sessions and make-up exams.

Mandatory group outside-class review sessions occurred about one week after each exam during a 75-minute afternoon campus 'free period' when no classes are scheduled. The group format took less instructor time than correcting students individually during office hours. Holding correctives outside class time reduced classroom time spent and making them mandatory may have increased student attendance (Goldwater & Acker, 1975; Jones, 1975, Lewis, 1984). During the outside class review sessions the mastery instructor returned the exams and students asked questions about incorrectly answered test items. Material was explained in a different way for students not understanding the material by both the instructor and by students who answered particular questions correctly. Instructor suggestions for correction were based on whether errors seemed to result from (a) poor study methods, (b) lack of material, or (c) lack of understanding. Students could leave after asking questions about all their incorrectly answered exam questions.

Each exam had one retesting cycle in the form of a make-up exam. Makeup exams were mandatory for students scoring less than 70% of 100% correct on an exam and voluntary for students scoring above 70%. Make-up exams occurred outside class, in a group format, within approximately two weeks after each exam. Make-up exam scores replaced original exam scores if higher, and scores were circulated in the next

class period (Block, 1971; Block, Efthim & Burns, 1989; Guskey, 1985). All exams and course grades were computed using criterion-referenced instead of norm-referenced grading.

Taken together this meant a student received a study guide and used a mix of lectures and text to answer the study guide questions. They took an ungraded quiz on the first half of the study guide, scored it and asked questions in class about incorrectly answered items. This was repeated for the second half of the study guide. The students took a graded exam and again asked questions in class about incorrectly answered items. Students who took a makeup exam attended the outside class review session to ask more questions about incorrectly answered exam questions before taking the makeup exam. This cadence was repeated three times during the semester.

METHODOLOGY

Sample

The site for this study was a public, urban, commuter/resident college in the Northeast that enrolled approximately 12,000 students. The Social Work Department had 275 students and nine full-time faculty when the study was conducted. A convenience sampling plan generated 137 students registered in four sections of a junior-level introductory social work course that addressed issues related to poverty. The sample demographics of the two course sections taught with mastery learning were equivalent so the two sections were collapsed into one group (N = 69 students) and are referred to in this study as the mastery group. The social work instructor was a Hispanic male with seven years of teaching experience, all with mastery learning. The

instructor will be referred to as the mastery instructor.

Table 1 Sample: Demographic Characteristics

Demographic Categories		Mastery Group	
Academic Major:	SW / Non-SW	20 (29%)	49 (71%)
Gender:	Female/ Male	55 (80%)	14 (20%)
Race:	White/ Black	56 (80%)	6 (9%)
	Hispanic/Asian	5 (7%)	2 (3%)
Entry GPA:	M SD	2.92	.57
Age:	M SD	23.88	5.44
Entry knowledge level of poverty:	M SD	37.40	15.40
			N = 69

Measures

Instructor created measures collected both qualitative and supplementary quantitative data from the mastery group. Validity of the instructor-created instruments was checked with the 'recognized experts' method, using the doctoral committee guiding this research. The committee examined and modified the instruments to increase content and face validity. To decrease response bias, all student surveys were made anonymous and the mastery instructor explained, distributed, and collected all the measures. Qualitative and supplementary quantitative data were collected from the mastery group when the course ended.

Table 2 Instrument Summary: Times Administered

Administered	Instrument	Target
Post-Instruction	Attitude Toward:	
	Mastery Learning (quantitative)	Students
	Quiz Frequency (quantitative)	Students
	Reactions to Mastery Learning (qualitative)	Students
Throughout Instruction	Implementation log (qualitative)	Instructor

Student attitude toward mastery learning was measured by six fixed-response questions that generated ordinal data. Five fixed-response questions used a four-point Likert scale with a response choice of 'helpful' (extremely, very, somewhat, of no help). The questions addressed the helpfulness of the following five elements of mastery learning (a) student study guides, (b) ungraded quizzes, (c) provision of answer keys and in class review sessions, (d) outside class review sessions, and (e) make-up exams. A sixth question used a three-point Likert scale to determine student attitude about the six quizzes (too many, too few, about right). Qualitative data about student reactions to mastery learning were collected with six open-ended questions that asked students to list what they liked, disliked, and would change about study guides, ungraded quizzes, provision of answer keys & in class review sessions, outside class review sessions and make-up exams. One question requested any additional open-ended comments.

The mastery instructor kept a log on word processor that contained qualitative data about the implementation process. The mastery instructor entered data into the log throughout the study and examined the log weekly to make sure all sections and subsections had entries. The log has seven pre-coded sections in order to make the data collection and analysis more complete (Lincoln & Guba, 1985). One section was created for each mastery element including: (a) choosing instructional content, (b) writing instructional objectives, (c) curriculum alignment, (d) communicating objectives to students with written study guides, (e) quizzes and exams, (f) feedback, correctives, and review sessions, and (g) make-up exams. To make the data collection even more complete five subsections were created for each section including the headings of (a) procedures followed, (b) materials needed, (c) positives and negatives encountered, (d) implementation tasks, and (e) beginning solutions to problems encountered.

ANALYSIS

Qualitative data from the students and the mastery instructor were entered into a word processor and examined with the constant comparison method (Lincoln & Guba, 1985). The method involves choosing a unit of analysis (student and social work instructor comments) and categorizing all the units by similarity of content (Lincoln & Guba, 1985).

Supplemental quantitative data were analyzed with SPSS and examined first. The qualitative student data were sorted three times to see how students reacted to mastery learning in general and to the mastery learning elements in particular. The first sorting established overall categories for the comments. The first categories to emerge

were simply positive and negative comments about mastery learning. These data were examined first to see how students reacted to mastery learning overall. The second sorting categorized the positive and negative comments by the mastery elements to see how students reacted to individual mastery learning elements. Finally, the comments were sorted by content to see what students actually said about mastery learning. The qualitative data from the social work instructor were sorted in a similar manner to examine reactions to mastery learning in general, and then to specific mastery elements.

RESULTS

The supplementary quantitative data from students were examined first to see how helpful students rated mastery learning overall and reexamined to see how helpful students rated the mastery learning elements.

Student Attitude Toward Mastery Learning

Quantitative ratings of how helpful students found the individual mastery learning elements were first collapsed into one mean score for an overall rating of mastery learning. Quantitative results showed that 93% of the students rated mastery learning as being either "very" or "quite" helpful to their learning (Table 3). Only 3% of the students rated mastery learning as "not" helpful to their learning. Most students responded that having six quizzes was "about right" and was not "too many" or "too few." The overall student rating of mastery learning was positive.

Table 3 Overall Student Rating of Mastery Learning

	Helpfulness of Mastery Learning				
	N	Very	Quite	Somewhat	Not
Ratings	344	78%	15%	4%	3%

The quantitative results were then separated to see how students rated the individual mastery elements. Quizzes were the highest rated individual mastery element with 99% of students rating quizzes as "very," or "quite" helpful to their learning. The outside class review sessions were the lowest rated mastery element, but 86% of students still rated them as "very," or "quite" helpful to their learning (Table 4). Ratings showed that students found all the mastery elements to be helpful to their learning.

Table 4 Student Ratings of Mastery Learning Elements

		Helpfulness of Mastery Learning Elements			
Element	N	Very	Quite	Somewhat	Not
Study Guides	71	80%	14%	6%	0%
Quiz	71	89%	10%	1%	0%
Answer keys In-class review	71	78%	14%	8%	0%
Outside class Review	65	63%	23%	5%	9%
Make-up exams	66	82%	8%	2%	8%
Total	344	78%	15%	4%	3%

Student Comments: Mastery Learning

The six open-ended questions about mastery learning generated 342 comments from 60 students. The 342 comments were first sorted to see if students reacted positively or negatively to mastery learning overall. The initial sorting revealed that 86% of the 342 student comments were positive toward mastery learning (table 5). The remaining comments were either (a) negative (2%), (b) neutral (6%), (c) suggestions for improvement (6%), or (d) unreadable (2%). Overall, students commented positively about mastery learning.

Table 5 Categorization of Student Comments about Mastery Learning

		Student Comments				
	N	Positive	Negative	Neutral	Improve[a]	?[b]
Student Comments	342	86%	2%	6%	5%	1%

Note. a: Improve = suggestion to improve element.
b: ? = unreadable or unintelligible comment.

Student Comments: Mastery Learning Elements

The 342 student comments were sorted again to see how students reacted to the individual mastery learning elements. The number of positive comments about the mastery learning elements ranged from a low of 82% positive (make-up exams, outside class reviews) to a high of 94% positive (in-class reviews, provision of answer keys)(table 6). Of the additional comments made by students, 86% were positive

toward mastery learning. The comments suggest students reacted positively to the individual mastery elements.

Table 6 Categorization of Open-ended Comments about Mastery Learning

	N	Positive	Negative	Neutral	Improve[a]	?[b]
Study Guides	57	85%	2%	2%	9%	2%
Quizzes	58	86%	0%	0%	14%	0%
Answer keys	58	94%	2%	0%	2%	2%
Review sessions	60	82%	3%	12%	3%	0%
Make-up Exams	60	82%	2%	13%	3%	0%
Other[c]	49	85%	0%	9%	4%	2%
N	342	86%	2%	6%	5%	1%

Note. a: Improve = suggestion to improve element.
b: ? = unreadable or unintelligible comment.
c: Other = additional comments.

The third sorting of the comments was done to see what students actually said about the mastery elements. Examining the 293 positive comments revealed that 185 had explanations (e.g., "study guides helped focus my studying"), and 106 did not (e.g., "study guides were great"). The 185 positive comments with explanations for each mastery element were sorted into areas of similarity and are summarized in Table 7.

Table 7 Positive Student Comments with Explanations about Mastery Learning

Mastery Element	Student Explanations	N
Study guides	Focus on material	20
	Organized study	6
	Exam preparation	5
Quizzes	Mistake correction	25
	Exam preparation	7
	Reduced test anxiety	5
Answer keys, In-class review	Mistake correction	35
Outside class Review	Mistake correction	21
	Improve grades	10
Make-up Exams	Improve/maintain grades	22
	Clarify material	4
Additional comments	Large amount learned	18
	Improved grades	4
	Reduced test anxiety	3
		N = 185

The following summary includes typical student comments in parentheses. In general, what students reported liking about each mastery element turned out to be the purpose of the element. For example, study guides are supposed to help students focus on essential course material and most of the positive comments suggested the study guides did exactly that ("These study guides were very helpful because I knew exactly what was important to read in text, study and know for exams. It is a great guideline as to important topics that should be emphasized"). The study guides also helped students to organize their studying ("These study guides were excellent in

helping keep the material in an organized fashion and therefore made studying for an exam easier").

The main purpose of having quizzes was to identify and correct students mistakes by allowing students to see answer keys and having review sessions. "Correcting mistakes" was the most frequent positive comment about the ungraded quizzes ("The ungraded quizzes provided insight for me into how much I had learned so far in the class and what I needed to clarify or concentrate on more"). Correcting mistakes was the most frequent positive comment about providing answer keys ("These were great. Knowing the answers to questions I got wrong helped me understand why I got them wrong in the first place"; "I think that it was very important for each student to have access to answers if only to guarantee him or her the knowledge of their strength and weaknesses regarding class material"). Mistake correction also was the most frequent positive comment for outside class review sessions ("This requirement ensures that students will try to learn what they didn't know before"; "Very helpful because the questions I got wrong the first time were cleared up").

Improved achievement on the make-up exams should result after identifying and correcting student mistakes. "Improving and maintaining grades" was the most frequent positive comment about make-up exams ("These make-up exams are good. Most professors seem to feel that things should be learned the first time without a second chance. With people being human, I beg to differ. I think with more opportunity provided, people will try to take advantage of it and try to do better"; "Great opportunity to help us get a good grade we might not have gotten originally because of stress, personal problems, etc.").

Twenty suggestions described ways to improve the mastery elements (table 8). The suggestions described other viable implementations of the mastery learning elements. For example, it is possible to have more than six quizzes, to grade the quizzes, and to use voluntary instead of mandatory correctives.

Table 8 Student Suggestions to Improve Mastery Learning

Mastery Element	Student Suggestions for Improvement	N
Study guide	Give more detailed study guides	4
	Answer questions in order	1
Quizzes	Grade the quizzes	4
	More frequent, longer quizzes	2
	Match quiz and exam difficulty	2
Answer key, In-class reviews	Put answer key on board	1
Outside class reviews	Non-mandatory review sessions	2
Make-up exams	Have in-class make-up exams	1
	Use only for 'C' grade and below	1
Additional comments	Give more organized notes	1
	Drop lowest exam grade	1
		N=20

Examining the five negative student comments showed that each mastery learning element received one negative comment except for the quizzes, which received none. The five negative comments all included explanations and suggested (a) "study guides were too general" (n = 1), (b) in-class reviews were "redundant" (n = 1), (c) make-up exams gave an "undeserved second chance" (n = 1), and (d) outside

class reviews were: "redundant" (n = 1) and "inconvenient" (n = 1). The 22 neutral comments all indicated non-use of two mastery learning elements ("Did not take make-up exams", "Did not attend review sessions"). The student comments show that most students reacted positively to mastery learning.

Social Work Instructor Reactions

The implementation log kept on computer by the mastery instructor generated 30 pages of single spaced narrative. Log entries were first examined for overall themes and then reexamined to see how the social work instructor reacted to each mastery element. Some comparisons are made to the non-mastery instructor who taught two course sections with non-mastery instruction in the quantitative part of this study (reported elsewhere).

Instructor Comments: Implementation

Overall examination of the implementation log revealed that the mastery instructor spent time differently from the non-mastery instructor. The mastery instructor created all materials and testing before instruction began. In contrast, the non-mastery instructor normally chose instructional objectives first, taught them, and created the exams. Also different was the amount of time spent with students outside class and the number of students helped. The non-mastery instructor spent 14 hours during office hours helping 14 students who needed assistance with class material. The mastery instructor spent 21 hours running outside class, group review sessions and make-up exams for 79 students. The group review sessions ended up functioning as office

hours and no students attended the mastery instructor's office hours.

To examine overall instructor reactions to mastery learning, instructor comments were re-sorted into categories of positive, negative or neutral. The positive comments revealed the mastery instructor: (a) felt no confusion about what to teach or test, (b) spent most instructional time on essential content, and (c) omitted little essential content. The positive comments suggested mastery learning helped the mastery instructor: (a) focus on essential material during test creation and instruction, and (b) become more time efficient in the classroom by spending less instructional time on nonessential content.

The negative instructor comments about implementation involved the time spent (a) creating the table of specifications, (b) writing the 227 additional test items for three make-up exams and six quizzes, (c) assembling the make-up exams and quizzes, (d) writing three study guides, (d) aligning course materials, and (f) maintaining the 450-item test bank. Preparing all course materials before instruction began was initially noted as a negative because the time needed to do this was unknown. However, time spent was not a factor once course materials were created. The results show both positive and negative instructor reactions to mastery learning.

Instructor Comments: Mastery Learning Elements

Positive and negative instructor comments were then examined for the mastery learning elements. Positive comments about curriculum alignment referred to increased instructor focus on essential material, and suggested the table of specifications helped coordination of study guides, test items, and other course

materials. Negative comments about curriculum alignment referred to insuring all instructional material was taught and tested to the same proportions as "tedious."

Positive comments about study guides showed they helped the mastery instructor track content covered in each class. Ungraded quizzes and in-class review sessions helped the mastery instructor correct student learning errors and clarify unclear material. Ungraded quizzes also helped pilot testing of new test items without hurting student grades. Negatives about quizzes and in-class reviews included the discovery of "faulty teaching" (or a faulty test item) when most, or all, students answered quiz questions incorrectly. Faulty teaching was corrected during in-class reviews but noted as negative because the mastery instructor simply disliked identifying it during class. Another negative of in-class correctives happened when students argued for incorrect answers for the sake of argument ("This is a bad question because I got it wrong", "I think the answer I picked should be the correct answer" <Why?> "Because!"). Positive comments about outside class review sessions and make-up exams revealed it was a positive experience to help students correct their errors and to help students raise their level of understanding and exam scores. Negative comments about outside class review sessions and make-up exams involved arranging rooms and times rather than the process itself.

DISCUSSION

Students

The qualitative and supplementary quantitative results suggest students reacted positively to mastery learning. Ninety-three percent of students rated the mastery

elements as "very" or "quite" helpful and 86% of student comments about mastery learning were positive. Only 1% of the student comments were negative suggesting very positive student reactions to mastery learning and the individual mastery learning elements. As reported in the first part of this study, 62% of the students who took make-up exams were not required to but elected to take them, perhaps indicating a positive effect on student motivation to achieve (Aviles, 1996).

Mastery learning may be helpful to special student populations. For example, students with poor note taking skills or students with problems focusing on the essential course material may benefit from the structure that the written study guides provide. Students with poor study habits may benefit from knowing all the material taught is essential and that it is not possible to "study the wrong material" for the exams. It is also possible for correctives to be led by students who did well on the exams or who had already passed the class. Student led correctives could give students the opportunity to help and support each other and perhaps practice beginning communication and empathy skills with their classmates. Student led correctives also may be consistent with the principles of cooperative learning.

Social Work Instructor

Most instructor comments about mastery learning were positive and many involved how time was spent. Teaching with mastery learning meant the mastery instructor prepared all course materials before instruction began which allowed more time during the semester for department and campus responsibilities. Both the mastery and non-mastery instructors agreed this was preferable to creating materials during instruction or writing exams the night before they are given. The mastery instructor did

not record the implementation time spent but described it as a negative. The mastery instructor spent more time creating exams and quizzes simply because more test questions were required. However, it was noted that implementation time was not a factor once materials were created. Social work educators who teach with mastery learning should expect to spend more time creating course materials than they would with other instructional methods.

The mastery instructor reported feeling "time efficient" inside the classroom. Increased time efficiency inside the classroom may be partially due to the relationship between teaching and testing. For example, an instructor who teaches with mastery learning tests all material taught and not a fraction of what is taught. Therefore, instead of trying to free up instructional time by teaching 'faster', time spent on essential content can be increased by spending less (or no) time on nonessential content. This can be accomplished by closely following the course outline during instruction or by having a social work educator determine if issues raised in class support or sidetrack the terminal outcomes for his/her course. Both the mastery instructor and the students agreed to being "sidetracked or getting off on tangents" when issues raised in class were not on the course outline nor would appear on the exams. Every social work educator must decide if issues raised in class support the goals of the course directly, indirectly, or not at all.

Time efficiency outside class was attributed to using the group format correctives. It was much more practical to correct students and give make-up exams as a group than to do it one-on-one during office hours. For example, individually correcting the 79 students who took make-up exams (assuming a one-hour office visit)

would have required 79 hours in addition to the time needed to proctor their make-up exams! This writer would have concluded that mastery learning was too time intensive for social work education, had individual correctives been employed. The mastery instructor believed the positives of teaching with mastery learning outweighed the negatives although no rating system was employed.

Novice social work educators (and perhaps veteran educators as well) should find that the explicitness of the mastery learning elements and procedures offers direction with the planning and organization of course materials. However, novice instructors also can expect increased responsibility for what happens in the social work classroom since behavioral teaching methods rely heavily on the instructor to plan, direct, and manage the learning process. Novice instructors also can expect increased responsibility for the detection and correction of student learning errors. Novice instructors also should ready themselves for the questions, comments, and critiques they will get from sharing the answer keys to exams and allowing students to ask questions about the exam items and answers.

Social work educators may find mastery learning most applicable in introductory or survey courses and courses where curriculum changes little each semester (e.g., research methods). Courses with regular curriculum changes will require creation of additional materials and testing. Mastery learning also may be applicable in distance learning courses where it can be important to prepare and distribute course materials to off campus sites before a distance learning session begins. Mastery learning may apply less easily to intervention methods or "skill" courses. However, in these courses students could still be required to rewrite process recordings and intervention plans or

display interviewing skills repeatedly until reaching what an instructor decides is a level of mastery. It also could be argued that using supervision to develop student intervention skills is similar to the mastery learning "testing-correction-retesting" cadence, suggesting social work education already incorporates some behavioral learning principles evident in mastery learning.

If several social work educators teach with mastery learning and collaborate, it could result in better coordination of course content between different sections of the same course. Increased coordination also could occur between courses in the social work curriculum taught with mastery learning, especially courses with a part one and part two. If applied very broadly, it is possible to align the curriculum taught in the classroom with the terminal objectives outlined in the CSWE curriculum policy statement.

REFERENCES

Abrams, J. (1979). Mastery learning in a smaller school system. Educational Leadership, 37(2), 136-139.

Anderson, L., W. (1993). A functional analysis of Bloom's learning for mastery. Outcomes, 12(2), 14-18.

Anderson, L., W. (1981). A functional analysis of mastery learning. Outcomes, 1(2), 1-3.

Arlin, M. (1973). Learning rate and learning rate variance under mastery learning conditions. Unpublished Ph.D. Dissertation, University of Chicago, IL.

Aviles, (1996). A contrast study of mastery learning and non-mastery learning in an undergraduate social work class. Unpublished Ph.D. Dissertation, Social Welfare Department, SUNY at Albany.

Barber, C. (1979). Training principles and teachers for mastery learning. Educational Leadership, 37(2), 126-127.

Bauman, D., L. (1980). A mastery learning model applied to an undergraduate course in teacher education. Unpublished Ph.D. Dissertation, University of Alabama.

Block, J., H (Ed.). (1971). Mastery learning: Theory and practice. NY: Holt, Rhinehart and Winston.

Block, J., H, Efthim, H., E, & Burns, R., B. (1989). Building effective mastery learning schools. NY: Longman.

Bloom, B., S. (1956). Taxonomy of educational objectives: Cognitive domain. NY: Longman.

Bloom, B. S. (1968). Learning for mastery. UCLA-CSEIP Evaluation Comment, 1(2), 273-281.

Bloom, B., S. (1984). The search for methods of group instruction as effective as one-to-one tutoring. Educational Leadership, 41(8), 4-17.

Bloom, B., S, Hastings, J., & Madaus, G., F (Eds.). (1971). Handbook on formative and summative evaluation of student learning. NY: McGraw-Hill.

Brown, P. (1977). Using mastery learning in teaching college psychology classes. Unpublished Doctoral Dissertation, Educational Psychology Department, Brigham Young University.

Burns, R., B. (1987). Models of instructional organization: A casebook on mastery learning and outcome-based education. San Francisco, CA: Far West Laboratory for Educational Research and Development.

Carroll, J., B. (1963). A model of school learning. Teachers College Record, 64(8), 723-733.

Clandinin, D. J., & Connelly, F. M. (1994). Personal experience methods. In N. K. Denzin & Y. S. Lincoln (Eds.), Handbook of qualitative research (1st ed., pp. 413-427). Thousand Oaks, CA: Sage.

Cohen, A., & Hyman, J. (1991). New alignment experiments: Using outcome-based instruction to teach transfer of learning. Outcomes, 10(3), 11-16.

Decker, B. (1989). Implementation of mastery learning and organizational characteristics that may affect implementation. Unpublished Doctoral Dissertation, Columbia University, NY.

Dunkle, S., E. (1984). Use of mastery learning approach in allied health programs: Emergence of higher education. (ERIC Document Reproduction Service No. ED 260 606).

Dunkleberger, G., E, & Knight, C., W. (1979). Cognitive consequences of mastery learning via computer-generated repeatable tests. Journal of Educational Research, 72(5), 270-272.

Evertson, C., M, & Green, J., L. (1986). Observation as inquiry and method. In M. Wittrock (Ed.), Handbook of research on teaching (3rd ed., pp. 162-213). NY: Macmillan.

Fitzpatrick, K., A. (1985). Group-based mastery learning: A Robin Hood approach to instruction? (ERIC Document Reproduction Service No. ED 255 556).

Goldwater, B., C, & Acker, L., E. (1975). Instructor paced, mass testing for mastery performance in an introductory psychology course. Teaching of Psychology, 2(4), 152-155.

Gronlund, N., G. (1981). Measurement and evaluation in teaching (4th ed.). NY: Macmillan.

Guskey, T., R. (1985). Implementing mastery learning. Belmont, CA: Wadsworth.

Guskey, T., R. (1987). Defining the essential elements of mastery learning. Outcomes, 6(1), 30-34.

Guskey, T., R. (1988). Improving student learning in college classrooms. Springfield, IL: Charles Thomas.

Guskey, T., R, & Pigott, T., D. (1988). Research on group based mastery learning programs: A meta-analysis. Journal of Educational Research, 81(4), 197-216.

Guskey, T., R, Benninga, J., S, & Clark, C., R. (1984). Mastery learning and students' attributions at the college level. Research in Higher Education, 20(4), 491-498.

Honeycutt, J., K. (1974). The effects of computer managed instruction on content learning of undergraduate students. (ERIC Document Reproduction Service No. ED 089 682).

Jones, E., L. (1975). Mastery learning: A strategy for academic success in a community college. (ERIC Document Reproduction Service No. ED 115 315).

Klein, J. (1979). Designing a mastery learning program. Educational Leadership, 37(2), 144-147.

Kulik, C., C, Kulik, J., A, & Bangert-Drowns, R., L. (1990). Effectiveness of mastery learning programs: A meta-analysis. Review of Educational Research, 60(2), 265-299.

Lee, M., L, & McLean, J. (1978). A comparison of achievement and attitudes among three methods of teaching educational psychology. Journal of Educational Research, 72(2), 86-90.

Lee, J., F, & Pruitt, K., W. (1984). Providing for individual differences in student learning: A mastery learning approach. Springfield, IL: Charles C. Thomas.

Levine, D., U. (1985). Key considerations for achieving success in mastery learning programs. In D. Levine (Ed.), Improving student achievement through mastery learning programs (pp. 273-294). San Francisco, CA: Jossey-Bass.

Lewis, E., W. (1984). The effects of a mastery learning strategy and an interactive quiz strategy on student achievement and attitude in college trigonometry. Unpublished Ph.D. Dissertation, Memphis State University, TN.

Lincoln, Y., S, & Guba, E., G. (1985). Naturalistic Inquiry. Beverly Hills, CA: Sage.

Martuza, V., R. (1977). Applying norm-referenced and criterion-referenced measurement in education. Boston, MS: Allyn and Bacon.

Nepote-Adams, S. (1991). Enhancing mastery learning with instructional technologies. Outcomes, 10(3), 17-20.

Palardy, J., M. (1986). Mastery learning: A mixed view. Education, 107(4), 424-427.

Robb, D., W. (1985). Strategies for implementing successful mastery learning programs: Case studies. In D. Levine (Ed.), Improving student achievement through mastery learning programs (pp. 255-274). San Francisco, CA: Jossey-Bass.

Squires, D., A. (1986). Curriculum development within a mastery learning framework. (ERIC Document Reproduction Service No. ED 275 059).

Wire, D., R. (1979). Mastery learning program, Durham College: Report on progress during the first year. (ERIC Document Reproduction Service No. ED 187 387).

U.S. Department of Education
Office of Educational Research and Improvement (OERI)
National Library of Education (NLE)
Educational Resources Information Center (ERIC)

REPRODUCTION RELEASE

(Specific Document)

I. DOCUMENT IDENTIFICATION:

Title: A Qualitative study of social work instructor and student reactions to mastery Learning instruction.	
Author(s): Dr. Christopher B. Aviles	
Corporate Source: Social Work Dept Buffalo State College	Publication Date: 1/20/2001

II. REPRODUCTION RELEASE:

In order to disseminate as widely as possible timely and significant materials of interest to the educational community, documents announced in the monthly abstract journal of the ERIC system, *Resources in Education* (RIE), are usually made available to users in microfiche, reproduced paper copy, and electronic media, and sold through the ERIC Document Reproduction Service (EDRS). Credit is given to the source of each document, and, if reproduction release is granted, one of the following notices is affixed to the document.

If permission is granted to reproduce and disseminate the identified document, please CHECK ONE of the following three options and sign at the bottom of the page.

The sample sticker shown below will be affixed to all Level 1 documents

PERMISSION TO REPRODUCE AND DISSEMINATE THIS MATERIAL HAS BEEN GRANTED BY

Sample

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

1

Level 1

☑

Check here for Level 1 release, permitting reproduction and dissemination in microfiche or other ERIC archival media (e.g., electronic) *and* paper copy.

The sample sticker shown below will be affixed to all Level 2A documents

PERMISSION TO REPRODUCE AND DISSEMINATE THIS MATERIAL IN MICROFICHE AND IN ELECTRONIC MEDIA FOR ERIC COLLECTION SUBSCRIBERS ONLY, HAS BEEN GRANTED BY

Sample

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

2A

Level 2A

☐

Check here for Level 2A release, permitting reproduction and dissemination in microfiche and in electronic media for ERIC archival collection subscribers only

The sample sticker shown below will be affixed to all Level 2B documents

PERMISSION TO REPRODUCE AND DISSEMINATE THIS MATERIAL IN MICROFICHE ONLY HAS BEEN GRANTED BY

Sample

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

2B

Level 2B

☐

Check here for Level 2B release, permitting reproduction and dissemination in microfiche only

Documents will be processed as indicated provided reproduction quality permits.
If permission to reproduce is granted, but no box is checked, documents will be processed at Level 1.

I hereby grant to the Educational Resources Information Center (ERIC) nonexclusive permission to reproduce and disseminate this document as indicated above. Reproduction from the ERIC microfiche or electronic media by persons other than ERIC employees and its system contractors requires permission from the copyright holder. Exception is made for non-profit reproduction by libraries and other service agencies to satisfy information needs of educators in response to discrete inquiries.

Sign here, → please

Signature: Dr. Christopher B. Aviles	Printed Name/Position/Title: Dr. Christopher B. Aviles, Assistant Professor
Organization/Address: Social Work Dept, Buffalo State College 1300 Elmwood Av, Buffalo, NY 14222	Telephone: 716 878 5327 FAX: 716 878 3240
	E-Mail Address: AVILESCB@BUFFALOSTATE.EDU Date: 1/20/2001

(over)

III. DOCUMENT AVAILABILITY INFORMATION (FROM NON-ERIC SOURCE):

If permission to reproduce is not granted to ERIC, *or*, if you wish ERIC to cite the availability of the document from another source, please provide the following information regarding the availability of the document. (ERIC will not announce a document unless it is publicly available, and a dependable source can be specified. Contributors should also be aware that ERIC selection criteria are significantly more stringent for documents that cannot be made available through EDRS.)

Publisher/Distributor:
Address:
Price:

IV. REFERRAL OF ERIC TO COPYRIGHT/REPRODUCTION RIGHTS HOLDER:

If the right to grant this reproduction release is held by someone other than the addressee, please provide the appropriate name and address:

Name:
Address:

V. WHERE TO SEND THIS FORM:

Send this form to the following ERIC Clearinghouse:

However, if solicited by the ERIC Facility, or if making an unsolicited contribution to ERIC, return this form (and the document being contributed) to:

ERIC Processing and Reference Facility
1100 West Street, 2nd Floor
Laurel, Maryland 20707-3598

Telephone: 301-497-4080
Toll Free: 800-799-3742
FAX: 301-953-0263
e-mail: ericfac@inet.ed.gov
WWW: http://ericfac.piccard.csc.com